

In the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Canceled)

2. (Canceled)

3. (Currently Amended): A method for anti-aliasing edge pixels in a rendering operation, comprising the steps of:

determining coverage parameters associated with an edge pixel on an edge of a given polygon being rendered that is stored in a first buffer;

5 creating an anti-aliasing value representing the relationship of the edge pixel to its surrounding neighbors as to the amount of color that is to be blended into the edge pixel of a color corresponding to that of its surrounding neighbors; and

10 storing the anti-aliasing value in a second buffer in association with the coverage parameters of the edge pixel stored in the first buffer, which anti-aliasing value is retained during rendering of other polygons containing the edge pixel as a function of the given polygon being in the foreground during the rendering operation of ~~a pixel in the~~ other polygon polygons.

4. (Original) The method of Claim 3, wherein the created anti-aliasing value is a single anti-aliasing value represented as a digital word.

5. (Currently Amended) The method of Claim 3, wherein the step of creating the anti-aliasing value comprises the steps of:

supersampling the edge pixel during rendering thereof to provide a plurality of subpixels, wherein each of the subpixels contains information as to coverage by the given polygon; and

5 converting the coverage pattern of the subpixels into a single anti-aliasing value that represents the positional relationship of the coverage as to neighboring pixels.

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6. (Original) The method of Claim 5, wherein the single anti-aliasing value represents both coverage percentage and the coverage pattern.

7. (Original) The method of Claim 5, wherein the single anti-aliasing value comprises a map of the subpixels.

8. (Previously Presented) The method of Claim 7, wherein the single anti-aliasing value has a plurality of bits associated therewith in a digital word of a length equal to the number of subpixels, with each bit having a value that represents whether the subpixel is covered.

9. (Original) The method of Claim 5, and further comprising the step of filtering the edge pixel prior to a display operation, comprising the steps of:

retrieving the edge pixel and the associated anti-aliasing value;

determining the color of at least one adjacent pixel to the edge pixel;

5 blending the color of the at least one adjacent pixel with the edge pixel as a function of the positional relationship of the subpixels in the supersampled edge pixel to provide an antialiased pixel; and

storing the antialiased pixel in a frame buffer.

10. (Original) The method of Claim 9, wherein the step of determining comprises the step of determining the color of at least two adjacent pixels to the edge pixel, and the step of blending comprises blending the color of the at least two adjacent pixels with the edge pixel as a function of the positional relationship of the subpixels in the supersampled edge pixel to the at least two adjacent pixels
5 to provide the antialiased pixel.

11. (Original) The method of Claim 5, wherein the step of creating the anti-aliasing value for the edge pixel is operable to further create a depth value in association with the anti-aliasing value, which depth value comprises the depth value of the subpixel that is covered by the foremost polygon.

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12. (Currently Amended) A graphics engine for anti-aliasing edge pixels in a rendering operation, comprising:

a rendering engine for determining coverage parameters associated with an edge pixel on an edge of a given polygon being rendered that is stored in a first buffer;

5 an anti-aliasing engine for creating an anti-aliasing value representing the relationship of the edge pixel to its surrounding neighbors as to the amount of color that is to be blended into the edge pixel of a color corresponding to that of its surrounding neighbors; and

a second buffer for storing the anti-aliasing value in association with the coverage parameters of the edge pixel in said first buffer, which anti-aliasing value is retained during rendering of other polygons containing the edge pixel as a function of the given polygon being in the foreground during the rendering operation of ~~a pixel in the polygon~~ other polygons.

13. (Original) The graphics engine of Claim 12, wherein the created anti-aliasing value is a single anti-aliasing value represented as a digital word.

14. (Currently Amended) The graphics engine of Claim 12, wherein said anti-aliasing engine comprises:

a supersampling engine for supersampling the edge pixel during rendering thereof to provide a plurality of subpixels, wherein each of the subpixels contains information as to coverage by the given polygon; and

5 a conversion device for converting the coverage pattern of the subpixels into a single anti-aliasing value that represents the positional relationship of the coverage as to neighboring pixels.

15. (Original) The graphics engine of Claim 14, wherein the single anti-aliasing value represents both coverage percentage and the coverage pattern.

16. (Original) The graphics engine of Claim 14, wherein the single anti-aliasing value comprises a map of the subpixels.

17. (Original) The graphics engine of Claim 17, wherein the single anti-aliasing value has a plurality of bits associated therewith in a digital word of a length equal to the number of subpixels, with each bit having a value that represents whether the subpixel is covered.

18. (Original) The graphics engine of Claim 14, and further comprising a filter processing engine operable to filter the edge pixel prior to a display operation by:

retrieving the edge pixel and the associated anti-aliasing value;

determining the color of at least one adjacent pixel to the edge pixel;

5 blending the color of the at least one adjacent pixel with the edge pixel as a function of the positional relationship of the subpixels in the supersampled edge pixel to provide an antialiased pixel; and

storing the antialiased pixel in a frame buffer.

19. (Original) The graphics engine of Claim 18, wherein said filter is operable to determine the color of at least two adjacent pixels to the edge pixel, and blend the color of the at least two adjacent pixels with the edge pixel as a function of the positional relationship of the subpixels in the supersampled edge pixel to the at least two adjacent pixels to provide the antialiased pixel.

20. (Original) The graphics engine of Claim 14, wherein said anti-aliasing engine is operable to further create a depth value in association with the anti-aliasing value, which depth value comprises the depth value of the subpixel that is covered by the foremost polygon.